

GUEST EDITORIAL

BIODEFENSE RESEARCH: A WIN-WIN CHALLENGE

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THE RECENT CONTENTIONS that a government scientist was responsible for the 2001 anthrax letter attacks represent a challenge to this country's resolve to remain a global leader. Our future is inextricably bound with our ability to maintain a pre-eminent role in science, and so it is imperative that our leadership and citizenry have the confidence in American science that it well warrants. Nothing in the latest events should change that reality.

Biodefense research clearly is necessary for the protection of the United States, but such research is far more than that focused on bioweapons and bioterrorism. Rather, biodefense is one aspect of a much larger scientific research and commercial enterprise integral to continuing advances in public health and safety, agriculture, and energy as well as national security. It is an axiom of scientific progress that research in one area produces utility in unrelated areas. For example, fungal research gave us antibiotics and cholesterol-lowering drugs, and bacterial research gave us anti-cancer drugs. Research into anthrax, one of a myriad of pathogens ubiquitous in nature—Mother Nature being the original “bioterrorist”—has led to a far greater understanding of the human immune system and of emerging as well as historic infectious diseases such as tuberculosis, which again is on the rise in this country and throughout the world. Further, studies of the mode of action of anthrax toxin have shown new cellular mechanisms that can be ex-

ploited for new therapies against cancer. Biodefense research has built an infrastructure and trained a workforce whose functions and abilities are being broadly applied to all communicable diseases. Its efforts will lead to breakthroughs for many diseases in addition to making us safer against a multitude of threats.

The reality is that there are no human endeavors with zero risk, and scientific research carries some small chance that an individual will accidentally be exposed to a pathogen or that a resolute person will employ research to inflict harm; a determined perpetrator is difficult to stop. However, the risk is greater from outside a laboratory and from technologies other than bioscience. And the damage to the future of America will be infinitely greater if one incident, no matter its extent, devastates our scientific endeavors because of precipitous regulatory responses so onerous as to cripple research in this country to our detriment and to the advantage of other countries.

This is not to contend that there should be no oversight or that the scientific community does not have a duty to communicate about its research with the public. To the contrary, in response to a report of the National Academies, Congress conceived the National Science Advisory Board for Biosecurity (NSABB). Last year, the NSABB produced a report titled *Proposed Framework for the Oversight of Dual Use Life Sciences Research: Strategies for Minimizing the Po-*

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tential Misuse of Research Information. This report was transmitted to 14 federal agencies and the White House and released to the public. It since has been the topic of federally sponsored discussions and meetings designed to garner the input of the scientific community and the public toward the development of calibrated federal guidelines and regulations for the oversight of life-sciences research that may have the potential for malevolent use depending on the degree of risk and the probability of occurrence (see <http://oba.od.nih.gov/biosecurity/>).

The American public knows that a robust and sophisticated bioscientific enterprise is critical to keeping us healthy and strong in every respect. The wealth of our nation depends on economic productivity, which, in turn, relies heavily on scientific progress and innovation. But our nation's strength has been in its willingness to accept risk as a necessary component of scientific development in diverse areas from vaccines and other therapeutic measures to space exploration. It is imperative that our political leadership remembers this also and acts in a commensurate manner.